

### 299 The impact of transition on patient adherence to nebuliser therapy

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**Objectives:** In CF patients of all ages, aerosolised medications are established treatments for chronic airway infection, inflammation and to improve airway clearance. Maintaining adherence to these therapies can be a challenge, particularly during adolescence and early adulthood. We hypothesised that adherence to nebulised therapies decreased after paediatric patients transitioned to adult care. In this study we examined adherence to nebulised therapy in the year pre- and post-transfer to adult centre.

**Method:** Patients were identified who had transferred from the regional paediatric to the regional adult service in Liverpool and who had been prescribed nebulised anti-pseudomonal medication via breath-activated data logging nebulisers (I-Neb™) for a least a year pre- and post-transition. Adherence (% of doses taken ÷ expected number) was calculated for the year before and the year following transfer. Treatment times were also analysed.

**Results:** 19 patients have been identified; to date, data from 8 patients have been analysed. The number of daily medications ranged from once to three times daily. Mean (SD) adherence in the 6 months prior to transfer (57 (38%)) was significantly greater than adherence in the 6 months following transfer (28 (23%);  $p=0.011$ ); there was a similar trend when adherence in the 12 months pre/post transfer was analysed. Treatment times remained unchanged.

**Conclusion:** Adherence to nebulisation decreased significantly in this group of patients following transfer. Further studies are needed to ascertain what factors contribute to the change in adherence following transition and how best to support these young people in maintaining adherence into adulthood.

### 300 Outpatient oxygen prescription in All Wales Adult Cystic Fibrosis Centre: Getting closer to the truth

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Previous audit (currently submitted) showed that the oxygen service at the All Wales Adult CF Centre did not meet guidelines set for COPD patients by the British Thoracic Society Working Group on Home Oxygen Services. Following this our service was revised to address this and ensure a safe and cost effective service.

**Objectives:** Assess the impact of the service changes by  
i. re-auditing against guidelines  
ii. detailed review of oxygen therapy concordance.

**Methods:** Retrospective data was collected from home oxygen order forms, medical notes, Air Products (oxygen provider) and phone interviews with patients. Data collected: age; sex; FEV<sub>1</sub>; oxygen assessment and prescription; follow up; oxygen usage; reasons for compliance variation.

**Results:** 15 of our 239 (6%) patients receive home oxygen (mean age 33.1 years, SD 10.8; mean predicted percentage FEV<sub>1</sub> 31.5%, SD 11.7). 12 are prescribed overnight oxygen, 11 ambulatory oxygen and 2 SBOT. All patients had appropriate oxygen assessment. Those with a new oxygen prescription received a home visit within 4 weeks and had specialist follow up within 3 months of installation. Air products data showed oxygen was under used by 69%, correctly used by 19% and over used by 13%. Close review of the data and patient interviews identified no concerns with SBOT or overnight oxygen use but that 13% were under using ambulatory oxygen. Variation was due to hospital admissions, dual oxygen supply, recent transplant and supply of oxygen to be used only during chest exacerbations.

**Conclusion:** This re-audit shows the service is now in line with the guidelines. It highlights the benefit of reviewing compliance data in conjunction with patient interviews.

### 301 An analysis of medical resource utilisation (MRU) associated with hospitalised pulmonary exacerbations (PulmEx) in the DPM-CF-301 and DPM-CF-302 registration trials of inhaled mannitol (Bronchitol®) in patients with cystic fibrosis (CF)

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PulmEx cause significant anxiety to CF patients and their carers. Clinically, PulmEx are associated with an accelerated lung function decline, increased risk of reoccurrence, early lung transplantation and death. On average UK patients experience ~1.5 PulmEx per year, however many occur to the same patients. PulmEx cause significant economic burden to strained healthcare systems. To quantify this impact, medical resource utilisation (MRU) was examined in (pooled) adult patients from the Bronchitol® registration trials.

Patient medical records, discharge summaries and diaries were assessed and concomitant medication use (start/stop dates, daily dose, route and indication) prescribed for: *anti-infection*, *respiratory system* or reasons termed: "*CF*", "*fibrosis*", "*CF-related*" were collected. Details of attendance, treating medical facility and community healthcare professional visits were also captured. Unit-costs were derived from national reference sources (2011–12) and applied at a patient-level. Protocol-defined Fuch's criteria objectively assessed hospitalised events (PulmEx) in the studies. MRU was considered independent of assigned treatment.

Over a 26-week period, the total Mean (SD) cost of MRU per patient was £4325 (7143). For patients experiencing none, 1, or >1 PulmEx, total costs were £2587 (5446), £9318 (8196) and £10385 (8889), respectively. The total Mean cost of a PDPE (£6731) was derived as the difference in MRU for medications, community visits and hospitalisations between patients experiencing none (£689; £53; £1845) or 1 (£1697; £57; £7565) PulmEx, respectively.

Reducing PulmEX is of significant clinical, humanistic and economic value to patients, providers and payers.

### 302 CF related low bone mineral density – Who has it and what are we doing about it?

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CF related low bone mineral density (CFRLBMD) is defined by a z-score at the lumbar spine and/or hip <2 SD below the age and gender matched mean.

**Objectives:**

1. To determine the prevalence of CFRLBMD in patients at the All Wales Adult CF centre
2. To review the demographics of patients with CFRLBMD
3. To review vitamin D levels, calcium supplementation and bisphosphonate therapy in patients with CFRLBMD.

**Methods:** Bone densitometry scan results were reviewed for all patients and the notes reviewed for those with CFRLBMD as defined above.

**Results:** 53 (29 male) of the 252 patients reviewed had CFRLBMD (21%). Their mean (SD) age, FEV<sub>1</sub>% and BMI were 26.9 (5.9) years, 43.7 (20.2)% and 21.3 (2.7) kg/m<sup>2</sup> respectively. The mean vitamin D ug/L was 25.1 (12.1) with 21 (40%) achieving a vitamin D over 30 (as recommended). Of the 53 patients 17 were on long term oral steroids, 8 had evidence of renal dysfunction, two were smokers. 9 had impaired glucose tolerance and 29 had CF related Diabetes. Of the 53 patients with CFRLBMD 48 (91%) were receiving calcium supplementation and 39 (74%) bisphosphonate therapy. Of those 39 receiving bisphosphonates 16 (41%) had received more than 5 years bisphosphonate therapy without a break and 16 were females of childbearing age. 4 patients had documented fractures (2 rib, wrist, metatarsal).

**Conclusion:** CFRLBMD is present in a fifth of our patients with a preponderance in diabetics and those on long term steroids. The majority of patients don't achieve recommended vitamin D target and almost three quarters are maintained on bisphosphonates which are not currently licensed for CFRLBMD and the effects of which in reproductive age females are as yet unclear.